

CLAIMS

[0020] What is claimed is:

1. A hybrid module comprising:
 - an electro-optical component for transmitting or receiving energy;
 - an electronic component for amplifying and transferring an electric signal to an external component;
 - a planar light wave circuit for providing an opto-electronic signal communication path; and
 - at least one optical waveguide embedded in said planar light wave circuit for propagating said opto-electronic signal communication;
2. A system as in claim 1, further comprising an optical fiber plug or connector.
3. A system as in claim 1, further comprising an embedded folding micro-mirror for directing energy transfer between said electro-optical component and said at least one optical waveguide.
4. A system as in claim 1, wherein said waveguide comprises a tapering.
5. A system as in claim 1, wherein said electro-optical component and said electronic component are enclosed in a heat sink encapsulation.
6. A system as in claim 5, wherein said heat sink encapsulation comprises a metal cap.
7. A system as in claim 5, wherein said electro-optical component is coupled to said electronic component.
8. A system as in claim 5, wherein said electro-optical component is coupled to said plurality of waveguides through said embedded folding micro-mirror.
9. A system as in claim 5, wherein said electro-optical component comprises a current amplifier for amplifying weak signals.
10. A method comprising:

fabricating a waveguide glass wafer;
producing a support glass wafer;
creating an optical chip by attaching said support glass wafer to
said waveguide support glass; and
creating an electro-optical module by attaching electro-optical
components to said optical chip.

11. A method as in claim 10, wherein said fabricating said waveguide glass wafer further comprises:
 - creating a plurality of waveguides using ion exchange technology in a planar lightwave circuit;
 - printing electric lines and contacts on said planar lightwave circuit layer;
 - dicing a slot in said planar lightwave circuit layer; and
 - filling said slot in said planar lightwave circuit layer with a metal.
12. A method as in claim 10, wherein said producing said support glass further comprises:
 - creating a plurality of vias;
 - coating said vias with a conductive material; and
 - printing electrical lines and contacts on both sides of said waveguide glass wafer.
13. A method as in claim 12, wherein said creating said plurality of vias comprises wet or dry etching.
14. A method as in claim 10, wherein said creating said optical chip further comprises:
 - Dicing said waveguide glass wafer at a fiber optic connector side to create double bars;
 - Polishing said fiber optic connector side; and
 - Attaching pig-tail fibers at end of said plurality of waveguides.
15. A method as in claim 10, wherein said attaching said electro-optical components to said optical chip comprises using active alignment beam.

16. A method as in claim 10, wherein said creating said electro-optical module further comprises:

Encapsulating said electro-optical components and electronic components with a thermal conductive polymer; and
Dicing said double bars to create separate said electro-optical modules.